UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

ENTROPIC COMMUNICATIONS, LLC,

Plaintiff,

v.

CHARTER COMMUNICATIONS, INC.,

Defendant.

Civil Action No. 2:22-cv-00125-JRG

JURY TRIAL DEMANDED

PLAINTIFF'S REPLY CLAIM CONSTRUCTION BRIEF

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TABLE OF ABBREVIATIONS AND ACRONYMS

Entropic	Plaintiff Entropic Communications, LLC
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EBr.	Entropic's Opening *Markman* Brief, Dkt. 97
CBr.	Charter's Responsive *Markman* Brief, Dkt. 104
Kramer Decl.	Rebuttal Expert Declaration of Dr. Richard A. Kramer Regarding Claim Construction (Entropic's Expert)
Almeroth Decl.	Declaration of Dr. Kevin Almeroth Regarding Claim Construction (Charter's Expert)
'775 Patent	U.S. Patent No. 8,223,775
'008 Patent	U.S. Patent No. 8,792,008
'826 Patent	U.S. Patent No. 9,825,826
'690 Patent	U.S. Patent No. 8,284,690
'362 Patent	U.S. Patent No. 9,210,362
'682 Patent	U.S. Patent No. 10,135,682
DNE	data networking engine
CME	cable modem engine

For reasons stated in Entropic's opening brief and herein, the Court should find no constructions are necessary given the clear plain and ordinary meanings of these terms.

I. CONSTRUCTION OF TERMS

A. '775 Patent

1. *"a data networking engine . . ." / "a cable modem engine . . ."*

Charter alleges that "[t]here is no disclosure of a DNE or CME implemented in any circuit, much less two circuits which are 'separate' from one another." This is plainly contradicted by the '775 Patent. A circuit is simply "[a] combination of electrical components interconnected to perform a particular task." EBr. at 7 (citing Almeroth Decl. ¶ 65). The entire disclosure of the '775 Patent is about various functionality embodied in circuits—it could not be embodied otherwise. The '775 Patent describes its own Figures as: "Fig. 1 is a block diagram of a gateway cable modem architecture . . ." and "Fig. 2 is a functional block diagram implementing the cable modem architecture of Fig. 1." '775 Patent, 2:42–45.

Nor is there any question the '775 Patent discloses the claimed separation of the circuitry. Figure 2—the "functional block diagram"—depicts the circuitry of the CME and DNE in great detail. It shows the separation in function and hence the "combination[s] of electrical components interconnected to perform [the] particular task[s]" of the CME and DNE.

Charter argues that connecting items destroys their separateness, which is illogical. Fig. 2 shows interconnections between DNE and CME, yet treats them as separate. And it is routine for POSITAs to break down devices into identifiable constituent parts.[1] To support its skewed read of the claims, Charter cites to inapplicable case law involving pharmaceutical patents, relying on

[1] In fact, Charter does this in its own patent applications. For example, U.S. Pat. Publ'n No. 2021/0337543 is assigned to Charter Communications Operating LLC. The publication recites first and second RF integrated circuit apparatuses, and Figures 3–12 contain functional block diagrams illustrating exemplary embodiments. *See* Ex. 12.

Teva and *Dow*. The claims in those cases "both required measurement of a specific value to determine if the value fell within a range." *Finalrod IP, LLC v. Endurance Lift Solutions, Inc.*, 2021 WL 2187980 at *12 (E.D. Tex. May 28, 2021); *see also Vstream Technologies, LLC v. PLR Holdings, LLC*, 2016 WL 6211550 at *13 (E.D. Tex. Sept. 27, 2016) ("'Slope of strain hardening' is a very precise mathematical element that requires a specific computing method"). In contrast, a "circuit" is not a so-called term of degree and "does not require such mathematical precision" or some other measurement. *Vstream* at *13. The disclosure of the '775 Patent is in no way lacking or confusing to a POSITA.

2. *"data bus" / "wherein the cable modem functions performed by the cable modem engine are completely partitioned . . ."*

Charter argues the patent applicant somehow disclaimed a data bus, despite unambiguously claiming "a data bus." It is not possible to disclaim an element plainly and literally present in the claim. Prosecution history disclaimers operate to narrow what would otherwise fall within a claim; they do not operate to invalidate claims by eliminating elements textually present.

Substantively, Charter's brief argument rests entirely on a flawed reading of the prosecution history. *See* Kramer Decl. ¶¶ 60–77 (thoroughly analyzing the file history). Briefly, Brooks discloses two processors, **102** and **104,** which the Examiner had initially mislabeled as representing the separate DNE (allegedly **102**) and CME (allegedly **104**). *See* Kramer Decl. ¶¶ 66, 71, 105-6. The patent applicant pointed out the examiner's interpretation was unsupported by Brooks' actual disclosure. First, the "processor **102** [of Brooks] handles many cable modem functions . . . and is explicitly described as 'programmed to implement the desired MAC functionality.'" *Id.* at ¶ 73. Therefore, processor **102** itself performed a mix of DNE and CME functions, contrary to the claimed requirement of functional separation. *Id.* at ¶ 106. Second, applicant noted that both processors **102** and **104** in Brooks share equally an interface with a third

component—the CMAC/CPHY block containing some cable modem functions. *See id.* at ¶¶ 74, 109. The patent applicant's point was ***both*** processors **102** and **104** work with this cable modem engine circuitry, further indicating the processors were not functionally separated from one another. *See id.* at ¶¶ 111–112. Legally this is not a "clear and unmistakable" disclaimer of subject matter. *See 3M Innovative Properties Co. v. Tredegar Corp.*, 725 F.3d 1315, 1326 (Fed. Cir. 2013). It certainly is not an inverse disclaimer striking from the claim an element that is textually there.

3. *"DOCSIS functions"*

Claim 19 is not redundant of Claim 18. Claim 18 requires only that the CME perform "cable modem functions other than the home networking functions performed by the data networking engine, the cable modem functions including interfacing with cable media." Thus, there may be certain cable modem functions, which are not necessarily implemented. Moreover, Claim 18 recites the broader "cable modem functions," which does not necessarily have the same scope as "all ***DOCSIS*** functions," referring to the DOCSIS standard.

4. *"DOCSIS MAC processor" / "DOCSIS controller"*

Charter's proposed construction is limited to "exactly as described in the patent specification." Yet Charter comes nowhere close to tackling the high bar needed to invoke a means-plus-function construction. The construction should be immediately rejected. Furthermore, even a watered-down version of Charter's means-plus-function construction is improper and unnecessary. Courts have routinely recognized that "processor" and "controller" are well-understood terms. *See e.g.*, *Smartflash LLC v. Apple Inc.*, 77 F. Supp. 3d 535, 541 (E.D. Tex. 2014); *Barkan Wireless IP Holdings, L.P. v. Samsung Elecs. Co.*, No. 2:18-cv-28-JRG, 2019 WL 497902, at *22 (E.D. Tex. Feb. 7, 2019). Here, the claims themselves describe the functions of the DOCSIS MAC processor and DOCSIS controller. Finally, Charter has made no argument that the DOCSIS MAC processor and DOCSIS controller should be limited to the specific ARM-based

embodiments disclosed in the specification. To the extent such a limitation is implicated in Charter's construction—and it must be, given Charter's "exactly as described" requirement—that is an additional reason the Court should deny Charter's proposed construction.

B. ’826 Patent

5. *"network management messages"*

The real dispute between the parties is the content of network management messages—specifically, whether they must exclude a message "conveying measured/determined characteristics?" CBr. at 12. The intrinsic record confirms they do not exclude such messages because they are explicitly disclosed in the specification. ’826 Patent, 3:67–4:1. Charter relies on claim language—but not of ***this*** patent. Instead, Charter relies on the parent patent (the ’008 Patent also in suit) to limit this one. Charter cites no legal authority in support of this unique proposition.

Charter argues the need for construction revolves around how the "measured characteristic" is different from the "message." But the claim already requires "said measured characteristic is different than said network management messages." Charter is not defining "network management message"; Charter is simply arguing a question of ***fact***—what is or is not different. This is not claim construction. Regardless, Charter is wrong. The claimed message may "***convey***[] measured/determined characteristics…" *Id.* at 3:67–4:1. The message is the conveyor, the measured/determined characteristics are the content. They are different.

C. ’008 Patent

6. *"operable to"*

Because it appears Charter has not attached any special meaning to "configured to," Entropic does not oppose construing "operable to" as "configured to."

7. *"digitize a received signal spanning an entire television spectrum . . ."*

The sole salient issue is whether a television spectrum may contain inside it something in

addition to individual television channels. The plain meaning says yes, because a POSITA would have been aware that not only may a spectrum contain unused portions such as guard bands, it may also contain useful data. The '008 Patent confirms data may be present, describing data-bearing DOCSIS channels in the monitored spectrum. *See* '008 Patent, 3:12–16, 4:45–47, 5:60–62.[2] Put simply, a television spectrum is a block of frequency containing television channels. It does not cease being a television spectrum if non-video signals are added within the block. Against this backdrop, Charter argues that the claims of a different patent limit the scope of the one in question. No legal precedent is cited, and doing so is in direct conflict with the plain meaning of the claim to a POSITA and the specification.

8. *"signal monitor" / "data processor" / "channelizer"*

The real issue is the separation of these components, and Charter's definition is unclear—does Charter's definition require these three elements to be embodied in separate, discrete chip packages? On one package but on different dies? Are separate circuit blocks of an SoC sufficient? Charter is (again) arguing a question of ***fact*** for the jury—what is separate—at the *Markman* stage.

Certainly any definition excluding the claimed devices residing on a single SoC is erroneous. By the priority date (2011), it was exceedingly common for a single SoC to embody many functional elements, as a POSITA would have been well aware.[3] The specification expressly

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[2] Charter includes a straw man argument regarding the dictionary definition of "spans," but in doing so, acknowledges there are parts of the spectrum that includes data channels. *See* CBr. at 14.

[3] In fact, the approach of integrating many functional components on a single chip was so well-known that SoC's, which use the approach, achieved dictionary status at least as of 2001-2002. *See* Ex. 13 at 636; Ex. 14 at 488. Even the general public would have been aware of the SoC approach. In 2010 Steve Jobs introduced the first iPad and discussed the SoC at its heart: "We have a chip called A4, which is the most advanced chip we've done, that powers the iPad. It's got the processor, the graphics, the I/O, the memory controller, everything in this one chip." Apple Special Event announcement, 2010, @ 26:27 et seq., https://www.youtube.com/watch?v=QaEYIYJLVlw

contemplates this design choice: "[t]he various modules of the subassembly **174** may reside in . . . one or more integrated circuits (e.g., ***one or more silicon dice*** [*sic*, dies])." *Id*. at 4:56–59. An SoC is multiple integrated circuits on one die. Charter's construction, which—depending on how the construction is itself construed—excludes described embodiments and should not be adopted.

D. <u>'690 Patent</u>

9. *"probe" / "physical layer probe"*

Charter grounds its argument to limit "probe" based on ***post-priority, extrinsic*** evidence. The DOCSIS 3.1 standard was first published in 2013 (Charter cites a version published in 2014). *See* CEx. 4 at p.3. The '690 Patent was filed in 2009 (and relates back to a 2008 provisional), five years earlier. The evidence is not applicable because "meaning must be interpreted as of [the] effective filing date." *PC Connector Solutions LLC v. SmartDisk Corp.*, 406 F.3d 1359, 1363 (Fed. Cir. 2005). Charter's focus seems to be on the DOCSIS 3.1 cable modems accused of infringement in this case, thereby committing error in construing the claims with reference to the accused devices. *See Wilson Sporting Goods Co. v. Hillerich & Bradsbury Co.*, 442 F.3d 1322, 1330–31 (Fed. Cir. 2006) ("claims may not be construed with reference to the accused device").

Charter also relies on the '690 Patent's description of prior art probes. *See* '690 Patent, 1:52–57. But these probes are criticized as limited and inflexible. *Id.* at 1:60–62. No POSITA would rely upon this discussion to limit the meaning of "probe" in the invention.

Finally, with respect to "physical layer probe," Charter errs by importing an embodiment into the claims. The cited description of "physical layer probe" is merely an exemplary embodiment in the context of a MoCA network. *See* '690 Patent, 3:38–44. MoCA has its own particular messaging architecture, and the claimed probes must be broad enough to encompass it, but they are not limited to it.

10. *"probe request"*

Charter asserts that, because the "probe request" is the allegedly novel part of the invention, it cannot have a plain and ordinary meaning. Charter cites no legal authority for this argument, which is nonsensical—well-known components can be used or joined in novel ways. Here, "probe request" means simply a request for a probe. That request must meet certain criteria, but those are defined by the other elements of the claim, not by "probe request" itself.

Charter's resort to lexicography fails because the relied-upon passage is a description, not a definition which meets the high and "exacting" legal hurdle.[4] *See GE Lighting Solutions, LLC v. AgriLight, Inc.*, 750 F.3d 1304, 1309 (Fed. Cir. 2014). Furthermore, the description disproves Charter's argument because the required parameters relating to the payload do not necessarily include the payload's content—they may relate to the payload's form. The '690 Patent (in the sentence immediately following what Charter cites) provides illustrations of probe parameters, including four that relate to the payload. One of these is the payload ***itself***, but three others relate to the ***form*** of the payload:

ing the content of a payload of the probe. In one embodiment, the parameters further include: the modulation profile for the probe; the payload content of the probe; the number of times to transmit the probe; the number of symbols for the payload of the probe; the preamble type for the probe; the cyclic-prefix length for the payload of the probe; the transmit power for the probe; and the transmit power scaling factor for the payload of the probe. Accordingly, the probe that is transmitted in response to the probe request will have a form dictated by the parameters specified in the probe request.

- The payload content itself

but also:

- 3 parameters re the form of the payload content:
  - # of symbols
  - cyclic prefix length
  - transmit power scaling factor

'690 Patent, 2:9–16. This is contrary to Charter's lexicography definition.

11. *"generating the probe in accordance with . . ." / "wherein the probe is generated in accordance with . . ." / "the first plurality of probe parameters*

[4] This is doubly true where Charter's definition subtly ***alters*** the words of the '690 Patent, eliminating an important preposition—Charter removes the emphasized portion of the Patent in its definition: "… the content ***of a*** payload of the probe." '690 Patent, 2:9. This is not a typo—Charter re-states and argues around this text. CBr. at 19.

comprising a form . . .”

Central to Charter’s indefiniteness argument is its contention that “***only*** the parameters sent in the probe request are used to generate and transmit a probe.” CBr. at 21. However, the specification discloses the opposite: the probe may be based on additional information, namely “information that previously existed within the transmitting node.” ’690 Patent, 6:42–45. Given this clear statement, Charter’s resort to lexicography is unavailing. At most, the passage at 2:3–9 of the ’690 Patent confirms “form” parameters (sent by the other node) are used in the generation and transmission of the probe. But the converse is not true—not everything used to generate and transmit a probe must be sent by the other node. All elephants are gray, but not all gray things are elephants—logic confirmed by the ’690 Patent at 6:42–45.

E. <u>’362 Patent</u>

12. *“downconverting . . . a plurality of frequencies” / order of the steps*

Charter’s briefing reveals its order-of-steps construction is just an attempt to narrow the claim scope to downconversion solely in the analog—not digital—domain. But Charter has no answer to the legal presumption that methods steps may be performed in any order, nor the point that the claim grammar confirms this presumption here for the first two steps. Finally, to sidestep the specification, Charter argues that the disclosure of digital mixing effectively “doesn’t count” because it applies only to desired channels. However, this is simply wrong. The specification describes both possibilities, right at the outset of describing digital downconversion (mixing):

of the analog filtered signal **226**. Digital signals I **232** and Q **242** are then applied to a bank of N complex mixers **250**, wherein N is an integer value corresponding to the number of desired RF channels located in the non-contiguous portions of the frequency spectrum BW1. It is understood that the number N can be any integer value. In one embodiment, N can be equal to the number of all available channels that exist in the licensed frequency spectrum to provide system flexibility.

Digital domain mixing of:

- Some channels (“desired”)

-OR-

- <u>All</u> channels available

’362 Patent, 5:31–38. Clearly from the above passage, the ’362 Patent describes digital

downconversion of (1) only the desired channels, (2) any number of signals desired/undesired signals, and (3) all of the channels. The claim requires downconversion of both desired and undesired channels. Thus, read in light of the specification, the claim envisions digital and/or analog downconversion of desired and undesired channels.

F. ’682 Patent

13. *“a composite SNR-related metric . . .”*

Charter’s indefiniteness position is a chain of argument ultimately resting on a false equivalence of “composite SNR-related metric” and “worst-case SNR profile.” They are not the same thing. The claim states the “composite SNR-related metric” is “***based at least in part on***” the “worst-case SNR profile.” Logically they are not the same item—one is based on the other. Moreover, the claimed composite SNR-related metric could also be based on other things as well (“at least ***in part*** on”), destroying any notion of equivalence. *See* Kramer Decl. ¶¶ 168–69.

The specification is consistent. Contrary to Charter’s assertion, composite metrics based on SNR-related metrics generally (not merely worst-case) are, in fact, disclosed. *See* ’682 Patent, 4:40–52 (no mention of “worst-case”). Charter regrettably misrepresents Dr. Kramer’s evidence—his declaration makes no reference to a “composite best case SNR profile”—and Charter conflates a “related metric” with “worst-case” and “profile” to support its false equivalence. *Compare* Kramer Decl. at ¶¶ 155–169, *with* CBr. at 28. But, at the end of the day, the claim language cannot be overcome. The composite metric is “***based*** at least in part” on a worst-case profile. The worst-case SNR profile must be considered in the creation of the composite metric. *See* ’682 Patent, cl. 1. There is nothing indefinite here and the claim language needs no construction.

14. *“service group[s]”*

Nothing in the opposition overcomes the central point—the ’682 Patent is described in terms of service groups consisting of groups of cable modems (CMs). “Figs. 4A and 4B illustrate

the network of FIG 1, with different groupings of CMs" '682 Patent, 2:24–27. The Figures' groupings **402**, **404**, **406** and **408** are groups of CMs, not channels (which are not even depicted). *See id.* at 6:46–7:6 (explaining groups). Without support in the intrinsic record, Charter relies on a single citation to extrinsic evidence, which post-dates the priority date by two years, violating the legal principle of construing claims at the time of the invention. *See* CBr. at 29. The DOCSIS definition of "cable modem service group" Charter relies on limits such groups to 1) the confines of the HFC topology and 2) a complete set of upstream and downstream channels. *See id.* In contrast, the '682 Patent specification contains no such limitations and specifically discloses groups of cable modems on a basis ***other than HFC location***. *See* '682 Patent, 6:39–45. Moreover, whatever DOCSIS might have later said, its use of terms cannot overcome the '682 Patent's usage.

15. *"said one of said plurality of service groups"*

The '682 Patent criticizes the folly of lumping all CMs together in a "lowest common denominator" approach. '682 Patent, 5:50–57. Instead, the '682 Patent groups CMs based on their performance (SNR). For each group, the invention can choose communication parameters based on group performance. The chosen parameters are used to communicate with that group. *E.g.*, *id.* at 5:42–50. This is precisely what the claim does. The "generating" step requires creating a composite metric for each service group. The "selecting step" uses the composite metric for a particular service group to choose one or more parameter(s) to use with ***that*** group. The "communicating" step uses the selected parameter(s) to communicate with ***that*** group.

Charter nonetheless argues there is "no way to know which one service group among the 'plurality of service groups' the 'communicating' and 'corresponding' steps should be performed on." CBr. at 30. However, the claim structure is logical and tracks the disclosure. Charter strangely cites *Lucent* for the proposition that the Court may not rewrite claims. Entropic is embracing the claim, not rewriting it. The POSITA would have no trouble understanding the claim.

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CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing document was filed electronically in compliance with Local Rule CV-5(a) and served on all counsel of record via the Court's CM/ECF system on this 30th day of May, 2023.

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